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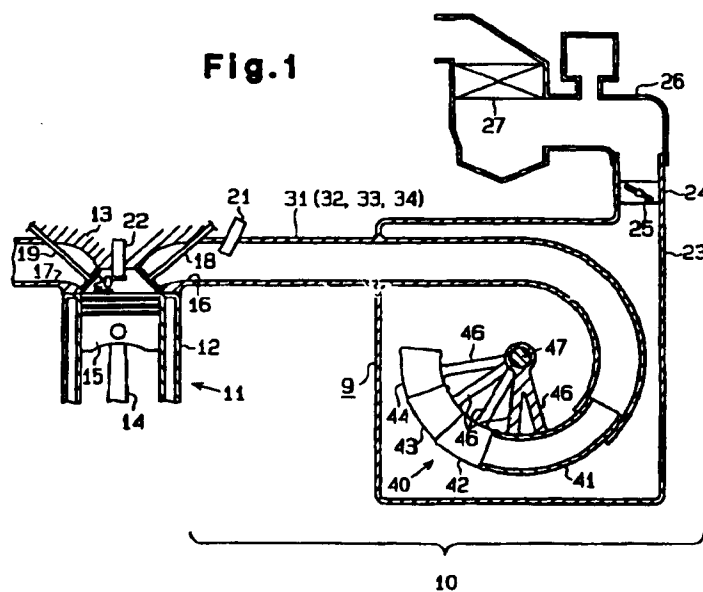
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(54) **Variable intake air apparatus**

(57) A variable intake apparatus (10) includes an intake manifold (9). The manifold (9) has a surge tank (23) and a plurality of branch pipes (31,32,33,34) extending therefrom. The air in the surge tank is drawn into the combustion chambers (20) of an engine (12) via the branch pipes. The lengths of the branch pipes are different. A movable pipe (41,42,43,44) is slidably located in each branch pipe. The movable pipes slides within the branch pipes for changing the effective pas-

sage length of the intake passages. The passage lengths of the movable pipes are determined such that the effective intake passage lengths are equalized. A motor (45) actuates the movable pipes to slide within the branch pipes based on the engine speed. The movable pipes integrally move with respect to the branch pipes while keeping the passage lengths of the intake passages equalized.



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D,A	PATENT ABSTRACTS OF JAPAN vol. 14, no. 488 (M-1039), 24 October 1990 & JP 02 199221 A (FUJI), 7 August 1990, * abstract *	1	F02B27/02
A	DE 10 09 429 B (DAIMLER-BENZ) * column 1, line 1 - line 6 * * column 2, line 20 - line 27 * * column 2, line 36 - column 3, line 13; figures 1,2 *	1-3,5,7, 8	
A	DE 87 04 464 U (OPEL) * page 3, paragraph 4 * * page 5, paragraph 4 - page 6, paragraph 1; figures 1,2 *	1	
A	PATENT ABSTRACTS OF JAPAN vol. 17, no. 263 (M-1415), 24 May 1993 & JP 05 001546 A (NISSAN08.01.93) * abstract *	1	
A	YAMAGUCHI: "stepless variable induction system and triple-ignition for racing rotary" AUTOMOTIVE ENGINEERING, vol. 99, no. 1, 1 January 1991, WARRENDALE US, pages 31-32, XP000178725 * page 31, middle column, paragraph 2 - right-hand column, paragraph 1 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	PATENT ABSTRACTS OF JAPAN vol. 10, no. 83 (M-466) '2140', 2 April 1986 & JP 60 224922 A (MAZDA), 9 November 1985, * abstract *		F02B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 January 1998	Examiner Joris, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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